



*Lakewaters of the Lost Creek
Project.*

Chapter 13 The Rogue River Basin, 1955 to 1980

Rogue River Basin Projects

The Rogue River in southwestern Oregon rises on the west slope of the Cascade Range, near Crater Lake, and flows generally to the west and south for 150 miles to empty into the Pacific Ocean at Gold Beach, about 28 miles north of the California-Oregon border. Its principal tributaries are the Applegate and Illinois rivers, both of which rise in the Siskiyou Range along the Oregon-California border. Along its course to the ocean, the river flows through a valley between the Cascades and the Coast Range. Downstream from Grants Pass it penetrates an almost roadless area of the Coast Range in a narrow, precipitous canyon, passable only on foot or by boat. An 84-mile stretch of river and canyon from the mouth of the Applegate River downstream to the mouth of Lobster Creek is managed for preservation of the natural environment under the Wild and Scenic Rivers Act of 1968.

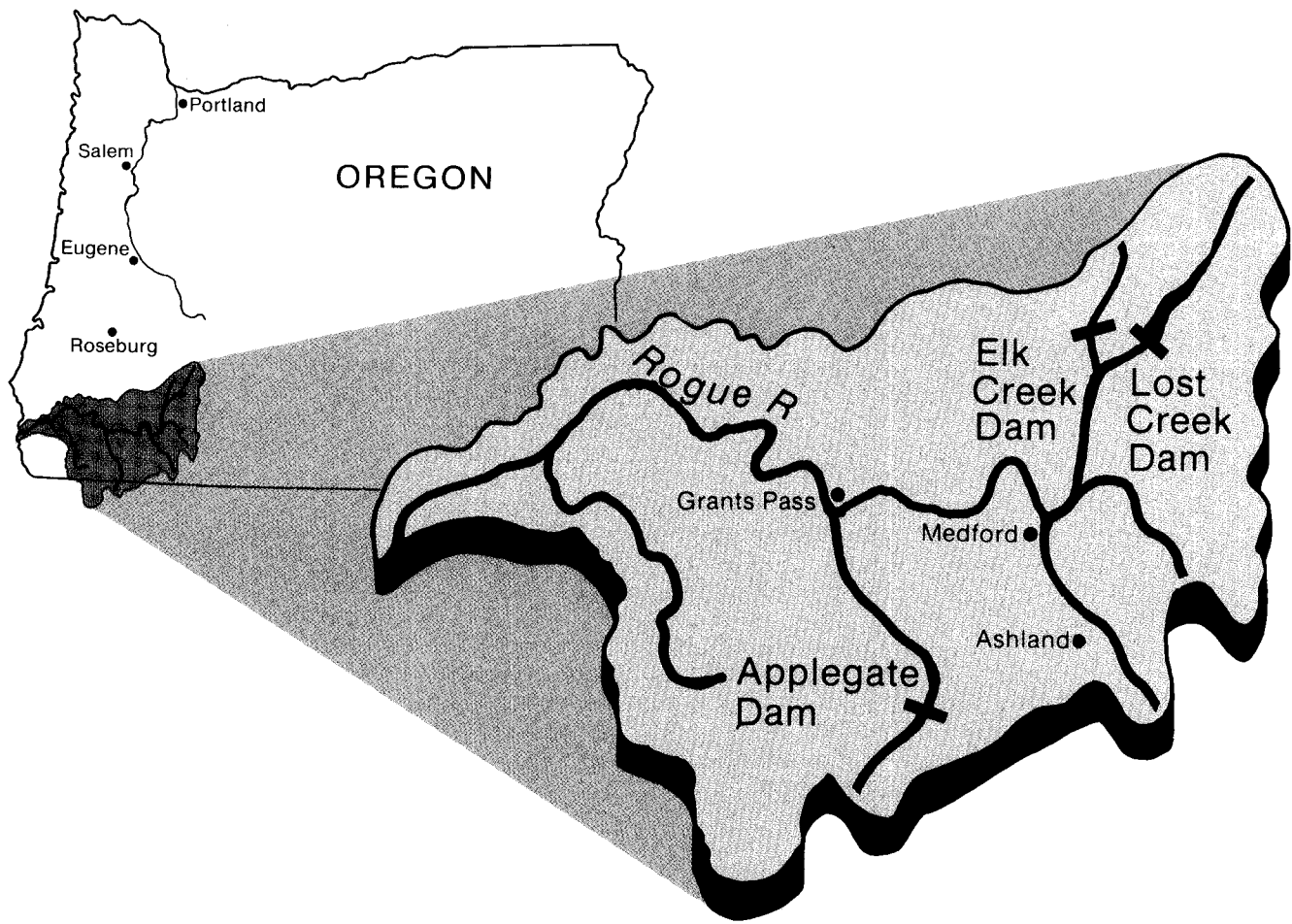
Since early in the 20th century the Rogue River has been nationally famed for its steelhead trout and salmon runs. In more recent years, however, man's multiple uses of the stream and the watershed have created a decline in the fishery resource. A principal factor has been the reduction of summer flows and the accompanying warming of the water by irrigation withdrawals. At present, water temperatures of 80°F. or more can be expected annually in the Coast Range canyon section of the stream.

During the same time that reduced flow and high temperature problems developed, other water-related needs arose. Population growth and development along the stream increased the flood-damage potential so much that the major flood of December 1964 caused more than \$16 million of damages. Additional water demands included increased irrigation, municipal and industrial uses, electric power generation, and recreation development.

Following a disastrous flood on the entire west coast north of San Francisco in 1955, Congress appropriated funds for a Corps of Engineers study of the Rogue River Basin. During the study period Congress also adopted legislation recognizing fish and wildlife enhancement, water supply, water quality control, and recreation as potential purposes of federal projects. Taking advantage of the opportunity afforded by newly enacted legislation, the Corps' investigation included consideration of all the basin's recognized needs. Working with various federal, state, and local agencies, the Corps formulated a plan that ultimately received support from a majority of local residents, the National Wildlife Federation, and the Izaak Walton League of America. Such broad backing represented a reversal of public



1912 photograph of a Rogue
River settlement.



above: Map of the Rogue River Basin area with three dam project locations.

response to an earlier study by another federal agency calling for dams in the basin; at that time, residents organized and enlisted nationwide support in opposition to construction of any dams on the Rogue River.¹

In response to the local desire for comprehensive development, the Portland District investigated 36 possible reservoir sites and selected three that would provide cost effective multiple-purpose benefits for the Rogue Basin. In addition to flood control, irrigation, and power, the dams promised significant water supply, water quality control, and recreation benefits. The Corps claimed that the projects would reduce average annual flood losses by 59 percent and allow irrigation of 39,000 acres of new land and 25,000 acres then receiving only partial service. At the time of the study, basin farmers irrigated 72,000 acres. At least 20,000 acre-feet of storage would be earmarked for future domestic and industrial water demands. Power facilities at one of the three storage projects would produce 49,000 kilowatts. The plan located the dams to minimize their blockage or inundation of spawning areas and to provide storage for increased stream flow during low-water season. Moreover, it included provisions for mitigation of fish losses. To enhance recreation potential within the region, the reservoirs made available aquatic and slack-water sports opportunities as well as camping areas. The district engineer's recommendations of December 1961, reflected extensive field work and views expressed at many public hearings. As Colonel Eisingminger noted, while public testimony demonstrated the strong desire for flood control improvements, "no plan would be acceptable which did not include full consideration of the fishery resource and provisions for maintenance and enhancement thereof."²

In 1962, based on favorable reviews by the Board of Engineers for Rivers and Harbors and the Chief of Engineers, Congress authorized the construction of three multiple-purpose dams in Rogue River Basin: Lost Creek on the Upper Rogue River; Elk Creek on the stream of that name; and Applegate on the upper Applegate River. The Portland District began Lost Creek in 1967 and completed it in 1977. Construction started at Applegate in 1978 with completion scheduled for the fall of 1981. As of 1980, the Corps considered Elk Creek an active but unfunded project.

The Portland District built Lost Creek Dam as the first of its multiple-purpose Rogue River Basin projects. Located 27 miles northeast of Medford, it bisects the Rogue River in a scenic, mountainous, and timbered canyon. The heart of the project, authorized by Congress in 1962, consisted of rockfill embankment dam 330 feet high and 3,750 feet long. The

Lost Creek Dam

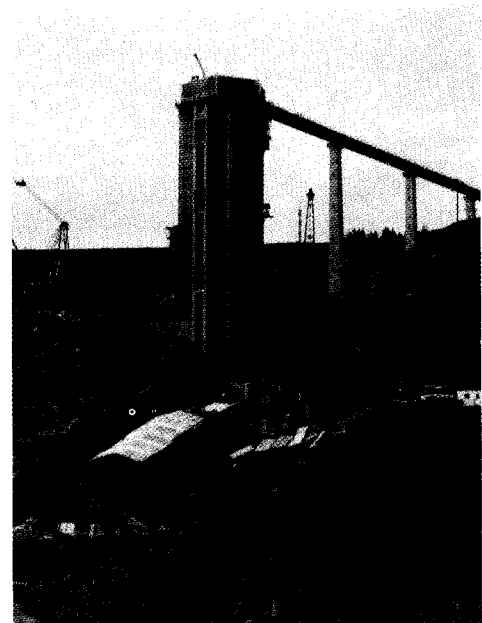
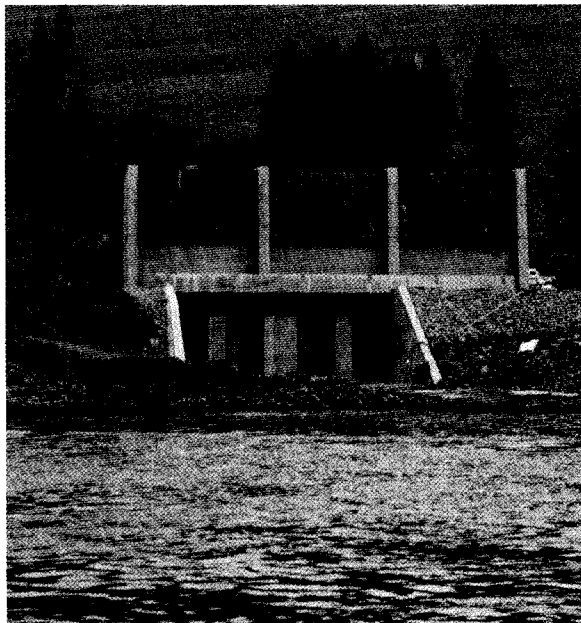
reservoir provided 315,000 acre-feet of storage in a lake ten miles long. It controlled runoff from a drainage area of 674 square miles, about 24 percent of the watershed area upstream from Grants Pass. In addition to flood control, irrigation, and other benefits, the stored water powered two turbines, producing 49,000 kilowatts. The structure's right abutment contained a regulating outlet tunnel, power penstock, and intake tower. The engineers placed the concrete, gate-controlled spillway in the left abutment. The dam's unusual intake tower allowed water temperature regulation by combining reservoir water from different depths in a mixing chamber, preparatory to downstream releases.³

Early work at Lost Creek, begun in 1967, consisted of site preparation and drafting of various design memoranda. One of the most challenging aspects involved designing the intake tower that would regulate the temperature of released water. The Corps conducted research on this problem at the Bonneville Hydraulic Laboratory, where engineers assembled a scale model of the dam and its components. To insure a downstream water temperature of 68 degrees, engineers designed the intake tower to contain three, 6 by 15-foot ports at four different levels in the reservoir. Water flowed from the ports to a 30-foot diameter well where it was mixed and then released. By 1971, the Corps had hatchery construction underway; and in the next year it let the contract for the main dam structure. When completed in 1973, the fish hatchery provided restitution for spawning and rearing areas lost by construction of the three Rogue project dams.⁴

In 1972, the district filed an environmental impact statement for the Lost Creek project; and a team of archaeologists under contract to the National Park Service visited the site to



Lost Creek Dam

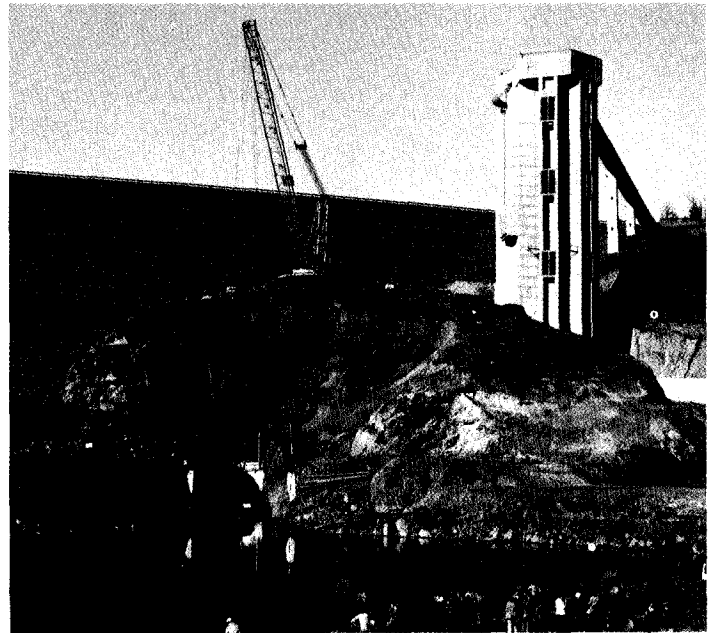


right: Powerhouse at Lost Creek Project, far right: Specially designed water intake tower at Lost Creek

collect Indian artifacts. The environmental statement did not satisfy a Medford environmental group, the Citizens League for Emergency Action on the Rogue (CLEAR). This organization and allied groups, including the Oregon Environmental Council, asserted that water released downstream would increase the turbidity in the river system. In April 1972, these groups planned to seek an injunction in federal district court to halt the project. They dropped this proposal after meeting with a governmental interagency team that furnished a detailed explanation of the project.⁵

During 1973 the public became aware of two ingenious features of the construction project. Instead of a 3.5-mile construction road, the contractor installed a conveyor belt 3,000 feet long to transport quarried rock down a mountain to the dam site. The belt system not only saved the scenic mountainside from scarring, but also furnished electrical power, as the rock-laden moving belt turned generators. In a major engineering feat, district engineers temporarily diverted the Rogue River around the site of the dam by boring a 1,600-foot-long tunnel through a solid rock mountain.⁶

In July 1976, four years after construction began, contractors placed the last of 11 million cubic yards of fill material on the dam. In February of the following year, the Corps closed the dam and the waters behind it slowly filled the reservoir. However, problems arose in the last days, as Governor Robert W. Straub and officials of the Oregon Fish and Wildlife Department feared that closure in a period of dry weather might strand salmon eggs and fish high and dry as the river receded. To protect the fish and avoid an injunction halting closure, the Corps provided a unique sprinkler system to spray the spawning gravels



above left: Rock quarry and conveyor belt delivery system used in construction of Lost Creek, above right: Closure of water diversion tunnel started the filling of Lost Creek reservoir. right: Water held back to fill the reservoir left fish spawning grounds dry. Innovative sprinklers helped save the fish run.



Applegate Dam

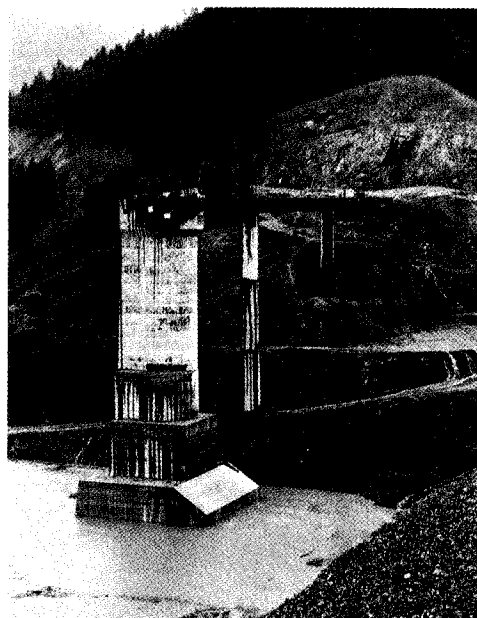
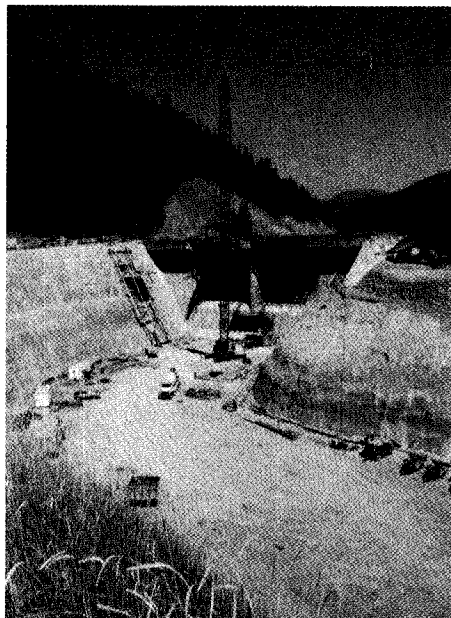
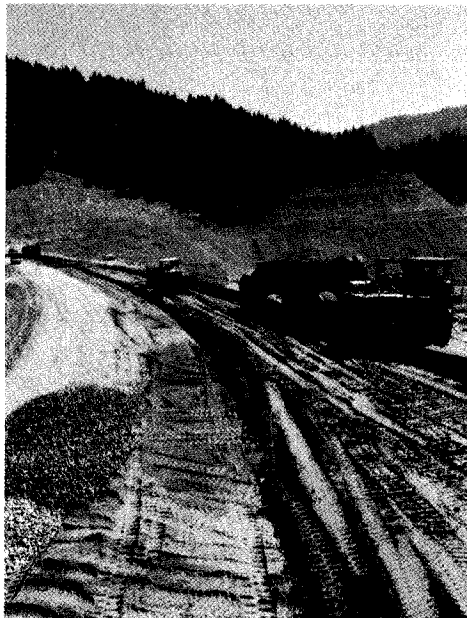
below the dam as the water went down. The fishery experts placed the sprinklers at six locations where large concentrations of salmon redds existed. At the same time, fisheries biologists and volunteers manually salvaged hundreds of immature fish from the receding waters. By 5 March, the federal and state fisheries agencies reported only an insignificant loss of fish due to stranding; and the U.S. Geological Survey noted no change in water quality stemming from the closure. In July 1977, the generators produced the first power at the Lost Creek Lake project.⁷

The Applegate Lake project, another of the three Rogue River Basin improvements authorized by Congress in 1962, is located on the Applegate River, a tributary of the Rogue. The dam, like Lost Creek, is a rock-fill embankment structure, 230 feet high and 1,300 feet long, creating a lake 4.5 miles long. The reservoir furnished 82,000 acre-feet of storage for flood control, irrigation, recreation, water quality control, and fish and wildlife benefits. Applegate shared many other design features in common with the Lost Creek project. These included a gate-controlled concrete-chute spillway on the left abutment, a regulating outlet conduit, and a multilevel intake tower for withdrawing water from different depths of the reservoir for downstream temperature control. The Corps dropped initial plans for fish passage facilities in favor of assured hatchery production. The Cole M. Rivers Fish Hatchery near Lost Creek Dam provided full compensation for loss of spawning and rearing areas at Applegate. Release of stored water to decrease down-stream temperatures and to augment streamflows during low-water periods benefited the river basin fishery. The dam controlled runoff from a drainage area of 223 square miles, almost 30 percent of the Applegate watershed. First work on the main dam construction contract at Applegate started in 1978.⁸

During pre-construction planning, the Applegate project encountered no significant opposition. The Corps' plan had strong local backing and the support of national conservation groups such as the Izaak Walton League and the National Wildlife Federation. However, when the Portland District issued its preliminary environmental impact statement (EIS) in July 1971, considerable opposition arose. The 45 people facing displacement and several local and statewide environmental groups raised objections. The Corps agreed with the dam opponents that the project would permanently flood 988 acres of productive agricultural and timber land, would cause the loss of spawning and rearing areas, would produce unattractive barren areas along the reservoir shoreline during seasonal drawdowns for flood control, and would reduce wildlife habitat by 1,500 acres. Construction and road building would also unavoidably scar the landscape. However, the Corps felt that the benefits out-weighed the adverse effects of the project. The EIS pointed to the reduction of flooding, increased downstream irrigation capability, improved fish spawning and rearing habitat in the summer and fall, and greater recreational opportunities.⁹

Opponents of the project succeeded in eliminating funds for the dam from the appropriations measure in July 1973. Two weeks later a public hearing, called at the request of Senator Robert Packwood, convened at the Jackson County Courthouse. Opposition testimony, especially by the Sierra Club and the Oregon Student Public Interest Research Group, asserted that flood damage could be prevented better by buying up water rights and controlling zoning of the flood plain than by construction of the dam. They further maintained that dangerous levels of methyl mercury would occur in the reservoir behind the dam and that the Corps had improperly calculated the benefit-to-cost ratio of the project. Proponents supported the dam as the best way to deal with increasing agricultural and residential pressure in the valley. Other public meetings and newspaper commentary in the Rogue Valley and around the state kept the issue alive. Supporters of the dam won a major victory in 1974 when Congress voted the first land acquisition funds for the project. Severe flooding of the valley in January 1974 and a General Accounting Office study that supported the Corps cost and benefit analysis helped convince Congress to proceed with the project.¹⁰

The district continued land acquisition over the next two years and began a replacement bridge across the lower Applegate River in June 1976. The district also filed a revised environmental impact statement in 1976, taking into account some of the points raised in opposition to the project. The EIS especially addressed concerns about its effect upon the habitat of the Siskiyou Mountain salamander and the blacktail deer, the potential for mercury pollution of the reservoir, and the potentially negative impact of increased recreational facilities. Studies conducted for the Corps showed that construction and operation of the reservoir would not threaten the existence of the salamander. The Corps proposed to manage the project lands to increase their carrying capacity for wildlife, particularly deer. Portland District Engineer, Colonel Clarence Gilkey promised in 1974 that the Corps would not build Applegate before resolving the mercury issue. Extensive research and analysis subsequently indicated little likelihood that dangerous mercury pollution would develop in Applegate Lake. Recreation facilities would be planned and developed by the



top left: Large amounts of earth were molded into Applegate dam, top center: Applegate spill gates are placed in spillway slots, top right: Applegate Project's water intake structure, very similar to that of Lost Creek Project
right: The completed Applegate Dam.



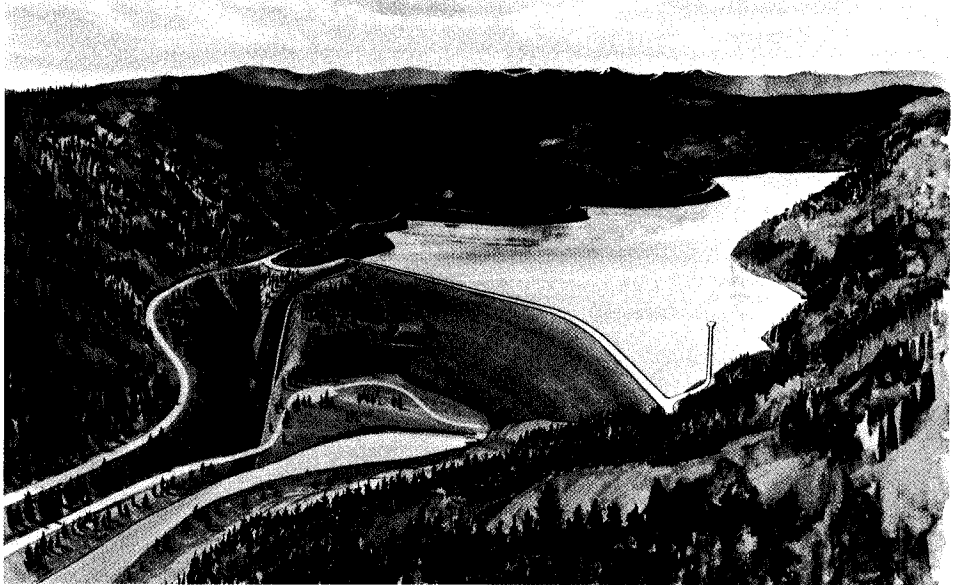
U.S. Forest Service for maximum usage with minimal adverse impact, but future traffic congestion was expected.¹¹

In the fall of 1976, the residents of Jackson and Josephine counties voted 40,000 to 26,000 in favor of the dam in an advisory referendum. While the project retained its local popularity, it took an unexpected rebuff at the national level in the spring of 1977. The newly-elected President, Jimmy Carter, included the dam on a list of 30 federal water projects marked for discontinuance unless they could receive stronger economic or environmental justification. Specifically, the President doubted the economic validity of the Corps' benefit-to-cost ratio for Applegate Dam. Dismayed by this turn of events, the Oregon Congressional delegation vowed continued support for the project. An overwhelming show of support for the dam at a public hearing at the Josephine County Fairgrounds in Grants Pass on 29 March 1977 strengthened their case. Because of this strong Congressional and public support, the project proceeded.¹²

The district issued a supplemental EIS and started work on the dam in 1978. The environmental review reflected changes in the embankment design which lowered costs and adverse esthetic effects. The review also noted a reduction in recreation facilities, reflecting public wishes. The Corps rather than the Forest Service would design and construct the facilities, while the latter would operate them. The revised plan would create minimal traffic problems. Finally, the Corps proposed improvements in the wildlife mitigation plan and in protection of cultural resources within the project area. Under an accelerated construction schedule, the Applegate Dam reached completion in the fall of 1980 at a cost of \$96 million.¹³

Elk Creek Dam

The Elk Creek Dam, the third part of the Rogue River Basin development, remains unbuilt. The 235-foot-high, 2,670-foot long embankment dam contained design features and purposes similar to the other Rogue projects. Providing 101,000 acre-feet of flood control and water conservation storage, the reservoir would control runoff from a 130-square mile drainage area. It would be located on Elk Creek 1.7 miles above its confluence with the Rogue River and 26 miles northeast of Medford. The plan called for the joint operation of Elk Creek and Lost Creek Dams to provide maximum flood control and water quality effectiveness. Elk Creek reservoir would contribute 25 percent of the combined flood reduction potential. Irrigation benefits depended upon development of a feasible irrigation plan by the Bureau of Reclamation. Between 1973 and 1978, the Corps spent \$8.7 million on preliminary work and road relocations; but opposition emerged in 1974.¹⁴



Proposed earthfill dam on Elk Creek.

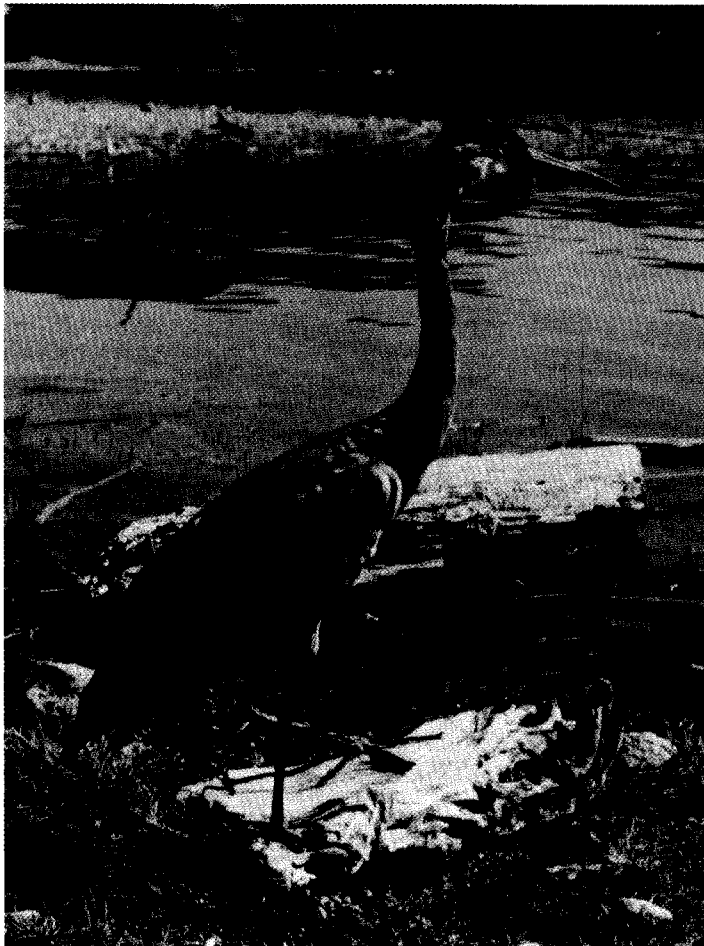


Site chosen for Elk Creek Dam construction.

Opponents of Elk Creek Dam questioned the project's economic justification and focused on the quality of the water in the Rogue River after completion. The State Wildlife Commission, which had originally supported the dam, and the Boise-Cascade Corporation emerged as the two major foes of the project. The commission contended that when released in the summer and fall, the impounded waters behind the dam would create turbidity in the Rogue much greater than existed under natural flow conditions. This muddy water would reduce the feeding, growth, and survival of the salmon, trout, and steelhead and limit angling quality for sportsmen. The lumber company feared that the cost of building logging roads which would reduce the amount of eroded forest soils washed into Elk Creek would be prohibitive. Environmental groups joined in opposition, such as the Oregon Student Public Interest Research Group, the Sierra Club, and the Oregon Environmental Council. As the Corps' supplemental EIS blandly noted at the height of the controversy "a general concern arose over implementation of watershed management plans and the need to assure no future degradation of the quality of reservoir inflow."¹⁵

Portland District studies indicated that the Elk Creek project probably would increase the duration of downstream turbid flows while reducing the maximum level of turbidity in the stream. After public hearings in the spring of 1975, both the Oregon Wildlife Commission and the Oregon State Water Resources Board withdrew their support of the Elk Creek project. In October, the Board reaffirmed its opposition after officials of the Oregon Department of Environmental Quality stated that outflow from the reservoir would violate state standards because of the amount of turbidity in the water. At that point, the governor of Oregon asked the Corps to halt further work until the effects of Lost Creek project on water quality could be observed.¹⁶

The Corps conducted the requested study and issued its findings in a draft EIS in February 1980. Opponents remained unconvinced by the Corps' assertion that turbidity levels would be within acceptable ranges. Critics also continued questioning the project's economic justification, its potentially adverse impact on timber harvest operations in the watershed, and its recreation potential. Having completed most of the planning, design, and relocation work, the Corps considered the dam in "a construction phase," awaiting only the congressional appropriation of building funds. However, opponents raised enough questions concerning the project's worth that in February 1980 Congress deferred indefinitely further consideration of the project. From 1975 to 1980, estimated cost for the dam nearly doubled from \$55 to \$108 million.¹⁷



Habitats for wildlife such as the Blue Heron were considered and preserved or reconstructed with the development of projects in the Rogue River.



Cole M. Rivers Fish Hatchery
on the Rogue River.

The multiple-purpose projects that the Corps designed for the Rogue River Basin marked a new departure in the Portland District's water resources development mission. In addition to the usual flood control, irrigation, and power generation features, these projects were the first in Oregon to have fish and wildlife enhancement, municipal and industrial water supply, water quality control, and recreation as authorized primary purposes. The district completed two of the three dams initially authorized by Congress in 1962. While the Rogue region enjoyed the benefits from these dams, serious economic and environmental concerns effectively stalled further work on the final element of the plan. Congressman Jim Weaver, in whose district the projects reside, underlined the increasing skepticism that undertakings such as Elk Creek Dam face in an era of national fiscal stringency. In response to the 1980 draft EIS, he wrote to the district engineer that

at the present time it appears the project is indefensible. . . . In these times of fiscal restraint, it is imperative that federal projects and investments meet our most pressing needs and yield the greatest possible return. It is essential that all federal water projects be examined with greater scrutiny than ever before.¹⁸